AE2107 Modelling of Water Systems 7.5 credits

Modellering av vattensystem

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for AE2107 valid from Autumn 2014

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

Environmental Engineering, The Built Environment

Specific prerequisites

Bachelor's degree in the field of Civil Eengineering, Environmental Engineering, or another subject with clear relevance to the course, of at least 180 ECTS credits, including basic knowledge in Numerical Analysis, Programming, or equivalent, corresponding to at least 6 ECTS credits. In addition, second cycle courses for at least 30 ECTS credits, including AE2503 (or equivalent) and AE2201 or AE2801 (or equivalent), and proficiency in English B or equivalent are required.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

The course gives skills in the use of different engineering tools to facilitate an optimal design of water resources within a specific area. The work will be organised as projects and allow both detailed familiarity with a specific well designed task and general skill in communication to understand the usability of the obtained results.

The course provides detailed familiarity to applied hydrological areas by using different quantitative tools to elucidate a number of different problems.

Example of areas where the students should be able to work after fulfilling the course:

- Improving water management by using models for increased understanding
- Developing methods for monitoring and regulation of water system
- Evaluation of climate variability and climate change for various spatial and temporal scales
- Understanding the potential and the risk when using mathematical models.

Course contents

The first part includes basic concepts and methods that are used to design and use various modelling tools to understand the modelling process. The water systems will consist of various types of land use within watersheds of different spatial scales. Various water systems for different land use will be evaluated for urban, natural and managed ecosystems. The water systems will include connection to climate change and emphasize to understand how climate will have impacts on the hydrology but also how the hydrological systems will have impact on greenhouse gas emissions and climate.

The second and major part of the course consists of a project where students are working with specific data and models.

Course literature

Specified during the course and related to selected projects.

Examination

- PRO2 - Project Task with Presentation, 4.5 credits, grading scale: A, B, C, D, E, FX, F
- PROA - Project Task, 3.0 credits, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.